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BOTANY.[1]

THE FLORA OF THE UPPER NIOBRARA.—In the northwestern part of Nebraska there are conditions which have given rise to a flora which possesses unusual interest to the student of botanical geography. Here a spur of the Rocky Mountains extends eastward between the headwaters of the Niobrara River on the south and the White River on the north. This extension of elevated land bears the local name of Pine Ridge. It rises above the great plain as a series of higher and higher ridges and points, until at its culmination it is fully twelve or fifteen hundred feet above the general level to the north and the south. Its southern slopes are less abrupt, but upon its northerly side it is often very abrupt and broken, and here there are multitudes of picturesque and fantastically shaped buttes.

Both the Niobrara and the White Rivers, in this region, run through rather broad flood plains, but their tributaries are all cañon streams, often with high rocky precipices along their banks. Here and there fine springs burst from the sides of the cañons, and give rise to clear, cold streams of pure water. These are more numerous upon the northerly side than upon the south. The elevation of the summit of the ridge is nearly five thousand feet above the sea. The tunnel of an extension of the Chicago, Burlington & Quincy Railway passes through the ridge at a measured elevation of four thousand five hundred feet, and there are numerous points within a short distance which rise fully three or four hundred feet above it.

The vegetation of this region presents an interesting mingling of the Rocky Mountain and the eastern floras. Its most striking feature is the abundance of pine trees. These are all of the Rocky Mountain variety of the Great Yellow Pine of the Pacific Coast. *Pinus ponderosa* var. *scopulorum.* They attain a height of from fifty to eighty or ninety feet, and have often a diameter of from fifteen to twenty-five or more inches. They occur in heavy masses in the cañons, and in more scattered growths upon the slopes and hilltops. So important are these pine forests that many saw mills have been erected near them, and large quantities of lumber have been cut for use in railroad construction and for other uses. Other trees occur only in the cañons. The most important of these are *Negundo aceroides*, *Prunus Americana*, *Prunus demissa*, *Fraxinus viridis*.

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[1] This department is edited by Professor Charles E. Bessey, Lincoln, Neb.

Ulmus Americana, *Populus monilifera*. Occasionally one may find a tree of *Juniperus virginiana*, and on Crow Butte there are numerous specimens of *Juniperus communis* var. *alpina*. Of the lesser woody plants one finds *Celasteus scandeus* in abundance, though far out of its reputed range. *Vitis ripania* and *Ampelopsis quinquefolia* are common, as are, also, *Rhus glabra*. *R. toxicodendron* and *R. aromatica* var. *trilobata*. Here we find growing commonly the yellow flowered currant, *Ribes aureum*, the Buffalo Berry, *Shepherdia argentea*, and the Diamond Willow, *Salix cordata* var. *vestita*.

Of the herbaceous vegetation only the following need be enumerated: *Thermopsis rhombifolia ; Lupinus plattensis ; Latteyrus polymorphus ; Potentilla auserina ; Œnothera albicaulis ; Gaura coccinea ; Opuretia missousiensis ; O. fragilis ; Campanula rotundifolia ; Asclepias speciosa ; Gilia lineasis ; Heliotropium convolvolaceum ; Krynitzkia glomesata ; Yucca augustifolia ; Calochostus nuttallii ; Stipa spartea ; Buchloe dactyloides ; Munsoa squanosa ; Boutelona oligostachya.* In addition numerous species of *Astragolus*, *Estsgonum*, and of various mountain composites might be noted, but those already given are perhaps sufficiently characteristic.—*Charles E. Bessey*.

KELLERMANN AND SWINGLE'S KANSAS FUNGI.—Fascicle II. of this distribution has been received. It is fully as satisfactory as its predecessor. The numbers are as follows: No. 26. Æcidium callir hœs E. & K. ; 27. Æ. grossulariæ Schum.; 28. Æ. penstemonis Schw.; 29. Æ. pustulatum Curt.; 30. Æ. tuberculatum E. & K.; 31. Cæoma nitens Schw.; 32. Cercospora althæina Sacc.; 33. C. diantheræ E. & K.; 34. C. Juglandis Kell. & Sw.; 35. C. polytæniæ E. & K.; 36. C. tuberosa E. & K.; 37. Dendryphium subsessile E. & E.; 38. Entyloma physalidis Cke.; 39. Fusicladium effusena Wint.; 40. Glorosporiam nervisequum Sacc.; 41. Peronospora androsaces Neissl.; 42. Phyllosticta ipomœas E. & K.; 43. Puccinia nigresceus Peck; 44. P. schedonnardi Kell. & Sw.; 45. P. silphii Schw.; 46. Ramularia urticæ Ces.; 47. Srptoria tenella Cke & Ell.; 48. Uromyces graminicola Burrill; 49. U. hyalinus Peck; 50. U. polygoni Fckl.

BAILLOU'S DICTIONNAIRE DE BOTANIQUE.—This work has now reached the 24th fascicle, the latter extending from *Lise* to *Meri*. Among the topics which have notable treatment, either by text or engravings are *Lycopodium*, *Magnolia*, *Marchantia* and *Melastoma*. The accompanying colored plate represents a twig bearing leaves, fruit and seed of *Theobroma cacao*, the chocolate tree of full size. The fascicles contain about 80 pages, and are of quarto size. Among the collaborators are Dr. Seynes, Nylander, Dutailly, Weddell, Durand, besides many other specialists.

LUERSSEN'S PTERIDOPHYTA.—In 1884 the first part of Luerssen's work on the Pteridophytes of Germany appeared, and recently part 14, which completes the volume, has come to hand. The work constitutes Vol. III. of the new edition of Rabenhorst's Kryptogamen-Flora von Deutschland, Oesterreich und der Schweiz. The treatment of the subject is eminently satisfactory, the text being full, and the illustrations numerous and of fine quality. Some estimate may be made of the fulness of the work when the reader learns that for the eighty-eight species described, we have here a volume of no less than 906 pages.

Luerssen's system is as follows:

CLASS I. FILICINAE Prantl.

Sub-Class I. Isosporeae Sachs.

Section I. Leptosporangiatæ, Goebel.

ORDER I. FILICES L.

Sub-Order I. Hymenophyllaceae Bory.
Family 1. *Hymenophylloideae* Pr.

Sub-Order II. Polypodiaceae Martius.
Family 1. *Polypodieae* Meth.
Family 2. *Aspleniaceae* Meth.
Family 3. *Aspidiaceae* Meth.

Sub-Order III. Osmundaceae Brongu.
Family 1. *Osmundaceae* Brongu.

Section II. Eusporangiatae Goebel.

ORDER II. OPHIOGLOSSACEAE R. Br.
Family 1. *Ophioglosseae* R. Br.

Sub-Class II. Heterosporeae Sachs.

ORDER III. HYDROPTERIDES Willd.
Family 1. *Salviniaceae* Bartl.
Family 2. *Marsiliaceae* Bartl.

CLASS II. EQUISETINAE Prantl.

ORDER IV. EQUISETACEAE Rich.
Family 1. *Equsietaceae* Rich.

CLASS III. LYCOPODINAE Prantl.

Sub-Class I. Isosporeae Prantl.

ORDER V. LYCOPODIACEAE Rich.
Family 1. *Lycopodiaceae.*

Sub-Class II. Heterosporeae Prantl.

ORDER VI. ISOÖTACEAS Bartl.
Family 1. *Isoötaceae* Bartl.

ORDER VII. SELAGINELLACEAE Meth.
Family 1. *Selaginellaceae* Meth.

Our familiar *Pteris aquilina* L. becomes under Luerssen's treatment, *Pteridium äquilinum* Kuhn. So too *Aspidium filix-femina* Sw., the *Asplenium filix formina* Beruh., of the ordinary manuals, becomes *Athyrium filix formina* Roth.—*Charles E. Bessey.*

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

PHILADELPHIA ACADEMY OF NATURAL SCIENCES.—April 24, 1888. Professor Ryder spoke of the displacement of the nucleus of tissue cells and in ova by a large amount of yolk matter.

May 1, 1888. Professor Leidy called attention to some *Menopon perale*, and also spoke of the parasites of the rock-fish.—Mr. Meehan exhibited specimens of the so-called navel orange.—Professor Wilson described some ærial roots in corn caused by abnormal watering of the plant. May 9, 1888. Professor Leidy spoke of the parasites of the pike and the pickerel.—Dr. Meyer described a tertiary barnacle, *Balanus concavus*, occurring in the neighborhood of Norfolk, Va. May 15, 1888. Dr. McCook read a description of four new species of orb-weaving spiders. He also made a communication on the color of spiders. May 29, 1888. Mr. Wilcox called attention to a number of shells beveled and perforated to permit a stick being thrust through for a handle.

June 5, 1888. Professor Heilprin called attention to a col-